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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,149	09/09/2003	Yoshiyuki Takata	Q77409	1892
23373	7590	04/05/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			ASHTON, ROSEMARY E	
			ART UNIT	PAPER NUMBER
			1752	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/657,149

Applicant(s)

TAKATA ET AL.

Examiner

Rosemary E. Ashton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-7, 10 is/are rejected.
- 7) ☒ Claim(s) 8, 9 is/are objected to. 4, 8, 9
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

With respect to JP'681, used in the rejection of the prior office action, the Chemical Abstract DN 124:131526 shows a formula that meets the limitations of formula IVa, however, the only adamantly compound named in JP'681 is adamantine carboxylic acid anilide, which the examiner agrees with applicant, in that it does not have the formula shown in the office action or in the Chemical Abstract.

### *Claim Rejections - 35 USC § 103*

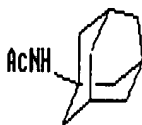
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,2,3,5,6,7,10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakisaka et al (SPIE article) in view of Kinoshita et al. US patent no. 6,479,210 and Lee et al. US patent no. 6,753,128.

Wakisaka teaches a photoresist composition comprising a polymer having a 2-methyl-2-adamantyl methacrylate monomer and a gamma-butyrolactone methacrylate monomer (this is the methacryloyloxy-gamma-butyrolactone in applicant's claim 7) as in claims 3,6 and 7, triphenylsulfonium triflate as a PAG (photoacid generator) and (1-adamantyl)acetamide (see formula below, acetamide is  $\text{CH}_3\text{CONH}_2$  with  $\text{CH}_3\text{CONH}$  as the AcNH shown below) as a quenching compound to aid in resolution of the resist pattern.

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**(1-adamantyl)acetamide 1**

Wakisaka does not teach the PAG has a phenylsulfonate anion.

In col.5, lines 61-67, Kinoshita teaches a positive photoresist composition comprising a PAG of triphenylsulfonium trifluoromethanesulfonate (triflate) or a PAG of triphenylsulfonium phenylsulfonate.

It would have been obvious to one of ordinary skill in the art to use triphenylsulfonium phenylsulfonate as the PAG rather than triphenylsulfonium trifluoromethanesulfonate (triflate) in the invention of Wakisaka with a reasonable expectation of obtaining a resist composition for exposure at 193 nm because Kinoshita teaches the two reagents are equivalent in the art of exposing to 248 nm. Lee teaches triphenylsulfonium trifluoromethanesulfonate forms an acid upon exposure to 248 nm and 193 nm (col. 3, lines 53-65 and col. 4, lines 1-4), thus triphenylsulfonium phenylsulfonate forms an acid upon exposure to 248 nm and 193 nm which makes obvious its use in Wakisaka which exposes at 193 nm.

As to claim 10, in col. 11, lines 54-67 (shown below) Kinoshita teaches the composition may also have a surfactant.

#### Other Additives

In addition to the above-described basic compounds, optional additives conventionally used in chemically amplified resist compositions may be added. For example, there are illustrated surfactants, sensitizers, light absorbents, dyes, pigments, organic carboxylic acids, leveling agents, stabilizers, low molecular weight compounds, plasticizers, etc.

Surfactants exhibit the effects of improving coating properties of the chemically amplified resist composition, preventing striation and improving developability. Preferably used surfactants include, for example, polyoxyethylene lauryl ether, polyoxyethylene stearyl ether, polyoxyethylene oleyl ether, polyoxyethylene octyl ether, polyoxyethylene nonylphenyl ether, polyoxyethylene glycol dilaurate, poly-

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It would have been obvious to one of ordinary skill in the art to add a surfactant to the resist composition of Wakisaka with a reasonable expectation of obtaining an improved resist composition because Kinoshita teaches the surfactants exhibit the effects of improving coating properties of the chemically amplified resist composition, preventing striation and improving developability.

As to claim 2, Wakisaka does not teach the amount of each reagent in the composition as in claim 2, however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the amount of reagents in the photoresist composition with a reasonable expectation of obtaining a successful photoresist for exposure to 193 nm light because adjusting the amount of reagents in a photoresist composition to obtain a successful resist it is well known in the art.

As to claim 5, Wakisaka does not teach the amount of monomers in the polymer as claimed, however, it would have been obvious to one of ordinary skill in the to vary the amount of monomers with a reasonable expectation of obtaining a polymer for a photoresist composition because variation in the amount of monomers in a polymer to obtain a successful photoresist composition is well known in the art.

***Allowable Subject Matter***

4. Claims 4,8,9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach a positive resist composition comprising the cyclohexyl compound in claim 4 or a resin having a norbornene and a dicarboxylic anhydride as in claims 8 and 9.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosemary E. Ashton whose telephone number is 571-272-1326. The examiner can normally be reached on Mon-Fri, 11:00-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Rosemary E. Ashton  
Primary Examiner  
Art Unit 1752

March 24, 2006

ROSEMARY ASHTON  
PRIMARY EXAMINER